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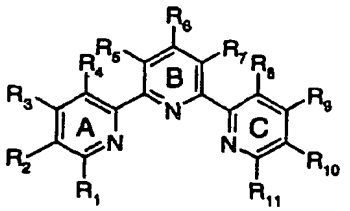
(54) Title: USE OF METAL COMPLEX COMPOUNDS AS OXIDATION CATALYSTS



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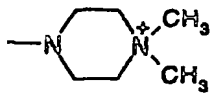

(3)

(57) Abstract: Use of metal complex compounds of formula (1) $[L_nMe_mX_p]^zY_q$ wherein Me is manganese, titanium, iron, cobalt, nickel or copper, X is a coordinating or bridging radical, n and m are each independently of the other an integer having a value of from 1 to 8, p is an integer having a value of from 0 to 32, z is the charge of the metal complex, Y is a counter-ion, q = z/(charge Y), and L is a ligand of formula (2) wherein R_1, R_2, R_3, R_4, R_5, R_6, R_7, R_8, R_9, R_{10} and R_{11} are each independently of the others hydrogen; unsubstituted or substituted C_1-C_{18}alkyl or aryl; cyano; halogen; nitro; $-COOR_{12}$ or $-SO_3R_{12}$ wherein R_{12} is in each case hydrogen, a cation or unsubstituted or substituted C_1-C_{18}alkyl or aryl; $-SR_{13}$, $-SO_{12}R_{13}$ or $-OR_{13}$; wherein R_{13} is in each case hydrogen or unsubstituted or substituted C_1-C_{18}alkyl or aryl; $-NR_{14}R_{15}$; $-(C_1$-C_6alkylene)$-NR_{14}R_{15}$; $-N^{\oplus}R_{14}R_{15}R_{16}$; $-(C_1$-C_6alkylene)$-N^{\oplus}R_{14}R_{15}R_{16}$; $-N(R_{13})-(C_1$-C_6alkylene)$-NR_{14}R_{15}$; $-N[(C_1$-C_6alkylene)$-NR_{14}R_{15}]_2$; $-N(R_{13})-(C_1$-C_6alkylene)$-N^{\oplus}R_{14}R_{15}R_{16}$, $-N[C_1$-C_6alkylene)$-N^{\oplus}R_{14}R_{15}R_{16}]_2$; $-N(R_{13})-N-R_{14}R_{15}$ or $-N(R_{13})-N^{\oplus}R_{14}R_{15}R_{16}$; wherein R_{13} is as defined above and R_{14}, R_{15} and R_{16} are each independently of the other(s) hydrogen or unsubstituted or substituted C_1-C_{18}alkyl or aryl, or R_{14} and R_{15} together with the nitrogen atom bonding them form an unsubstituted or substituted 5-, 6- or 7-membered ring which may optionally contain further heteroatoms; with the proviso that (i) at least one of the substituents R_1-R_{11} contains a quaternized atom which is not directly bonded to one of the three pyridine A, B or C and that (ii) Y is neither I$^-$ nor Cl$^-$ in the case that Me is Mn(II), R_1-R_5 and R_7-R_{11} are hydrogen and R_6 is formula (III) as catalysts for oxidation reactions, and the novel metal complex compounds of formula (1), the novel ligands of formula (2) and their starting materials.

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